

QUADRATIC EQUATION & IMAGINARY ZEROS. (P.3, P.4, 1.1, 1.4, 1.5, 3.1, 3.4.)

A 1. SOLVE $x-4=0$ $x=4$

2. CONSIDER x^2-6x+8

a, FACTOR $(x-4)(x-2)$

b, CHECK BY MULTIPLYING

$$\begin{array}{r} x^2 - 2x \\ -4x + 8 \\ \hline x^2 - 6x + 8 \end{array} \quad \checkmark$$

3. CONSIDER $x^2-6x+8=0$

a, SOLVE BY FACTORING

$$(x-4)(x-2)=0 \quad \begin{array}{l} x-4=0 \quad x=4 \\ x-2=0 \quad x=2 \end{array}$$

b, SOLVE WITH QUADRATIC FORMULA

$a=1, b=-6, c=8$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} = \frac{6 \pm \sqrt{36 - 32}}{2}$$

$$x = \frac{6 \pm \sqrt{4}}{2} = 3 \pm 1 \quad \begin{array}{l} x=4 \\ x=2 \end{array}$$

4. MULTIPLY

a, $(x-3)(x-3)$ x^2-6x+9

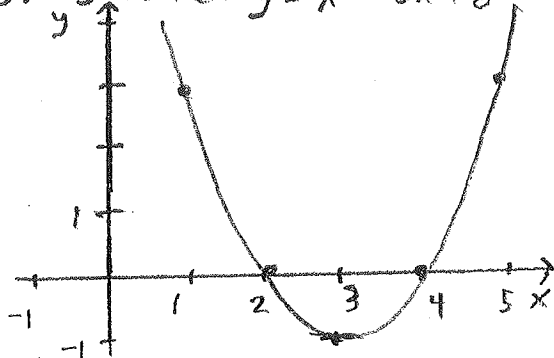
b, $(x+1)(x-1)$ x^2-1

c, $(x-y-1)(x-y+1)$

	x	$-y$	-1
x	x^2	$-xy$	$-x$
$-y$	$-xy$	y^2	y
-1	$-x$	$-y$	-1

$x^2 - 2xy + y^2 - 1$

5. SKETCH $y = x^2 - 6x + 8$



B 1. SOLVE $x-(3+i)=0$ FOR x .

$x = 3+i$

2. SOLVE $x^2+1=0$, HINT: $i^2 = -1$

$x^2 = -1 \quad x = \pm\sqrt{-1} = \pm i$ $\begin{array}{l} x=i \\ x=-i \end{array}$

3. CAN $x^2-6x+10$ BE FACTORED? NO INTEGER FACTORS

4. MULTIPLY $(3+i)(3-i)$

$9 - i^2 = 9 + 1 = 10$ 10

5. MULTIPLY $[x-(3+i)][x-(3-i)]$

	x	-3	$-i$
x	x^2	$-3x$	$-ix$
-3	$-3x$	9	$-3i$
$+i$	ix	$-3i$	$-i^2$

$x^2 - 6x + 9 + 1 = x^2 - 6x + 10$ $x^2 - 6x + 10$

6. SOLVE WITH QUADRATIC FORMULA:

$x^2 - 6x + 10 = 0$, HINT: $\sqrt{-1} = i$

$a=1, b=-6, c=10$

$$x = \frac{6 \pm \sqrt{36 - 40}}{2} = \frac{6 \pm \sqrt{-4}}{2}$$

$$x = \frac{6 \pm 2i}{2} = 3 \pm i \quad \begin{array}{l} x=3+i \\ x=3-i \end{array}$$

7. WHAT ARE FACTORS OF $x^2-6x+10$?

$(x-(3+i))(x-(3-i))$

8. SKETCH $y = x^2 - 6x + 10$

